

Amendments to the claims:

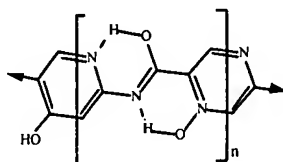
Please replace all prior versions and listings of the claims with the following amended claims:

CLAIMS

What is claimed is:

1. (Currently Amended) A composite material comprising a polymer with an amide back-bone structure represented by the formula  $[-Ht(OH)-C(OH)=N-]_n$ , wherein Ht are heterocycles comprising hetero-atoms comprising amide linkages with the hetero-atoms being positioned beta relative to nitrogen atoms forming the amide linkages forming the amide back-bone structure.

2. (Currently Amended) The composite material of claim 1, wherein ~~the amide linkages link one or more of aromatic structures and heterocyclic structures~~ the amide back-bone is substantially represented by the structure:



3. (Currently Amended) The composite material of claim [2] 1, wherein the hetero-atoms are nitrogen.

4. (Currently Amended) The composite material of claim [2] 1, wherein the heterocyclic structures comprise an alcohol functional group that is positioned beta to at least a portion of the amide linkages.

5. (Currently Amended) The composite material of claim [2] 1, wherein the aromatic structures comprise one or more function groups positioned beta relative to at least a portion of the amide linkages, the one or more functional group being selected from a

4 group consisting of an alcohol functional group, a thiol functional group and an amine  
5 functional group.

1 6. (Currently Amended) The composite material of claim [2] 1, wherein aromatic structures  
2 include bicyclic sub-structures.

3 7. (Previously Presented) The composite material of claim 1, further comprising a binder  
4 material.

1 8. (Previously Presented) The composite material of claim 7, wherein the binder material  
2 comprises one or more materials selected from a group consisting of epoxy, rubber,  
3 plastic, polyurethane and silicone.

4 9. (Previously Presented) The composite material of claim 2, wherein the amide linkages are  
5 positioned para between the aromatic structures and the heterocyclic structures.

6 10. (Withdrawn) A polymer comprising amide linkages between aromatic structures and  
7 heterocyclic structures, wherein the heterocyclic structures comprise hetero-atoms  
8 positioned beta relative to a nitrogen of the amide linkages.

1 11. (Withdrawn) The polymer of claim 10, further comprising alcohol groups positioned para  
2 to the amide linkages on at least one of the aromatic structures and heterocyclic  
3 structures.

-1 12. (Withdrawn) The polymer of claim 10, wherein hetero-atoms include nitrogen atoms.

1 13. (Withdrawn) The polymer of claim 12, wherein the nitrogen atoms are positioned beta  
2 relative the nitrogen of the amide linkages.

1 14. (Withdrawn) The polymer of claim 10, wherein the aromatic structures and the  
2 heterocyclic structures are linked in a para configuration between the amide linkages.

1 15. (Withdrawn) The polymer of claim 10, further comprising hydroxyl groups.

1 16. (Withdrawn) The polymer of claim 15, wherein the hydroxyl groups are positioned beta  
2 with respect to the amide linkages on at least one of the aromatic structures and the  
3 heterocyclic structures.

1 17. (Currently Amended) A method for making a polymer composite material comprising:  
2 a) reacting a carboxylic acid precursor and an amine precursor in a suitable solvent  
3 to form an aromatic polyamide, wherein the carboxylic acid precursor comprises  
4 an aromatic structure and two reactive carboxylic acid groups and the amine  
5 precursor comprises a heterocyclic structure and two reactive amine groups and  
6 wherein the heterocyclic structure comprises a hetero-atom in a beta position  
7 relative to one or more of the reactive amine groups; and  
8 b) isolating the aromatic polyamide, wherein the aromatic polyamide has a formula  
9 substantially represented by  $[-Ht(OH)-C(OH)=N-]_n$  or  $[-(OH)Ar(OH)-C(OH)=N-$   
10  $Ht-N=C(OH)-]_n$  wherein Ar are aromatic moieties and Ht are heterocycles  
11 comprising hetero-atoms with the hetero-atoms being positioned beta relative to  
12 nitrogen atoms forming amide linkages forming an amide back-bone structure of  
13 the polymer composite material.

1 18. (Original) The method of claim 17, wherein the hetero-atom is a nitrogen.

1 19. (Original) The method of claim 17, wherein the aromatic carboxylic acid precursor  
2 comprises a functional group positioned beta to one or more the reactive carboxylic acid  
3 groups, wherein the one or more functional groups are selected from a group consisting  
4 of an alcohol functional group, a thiol functional group and an amine functional group.

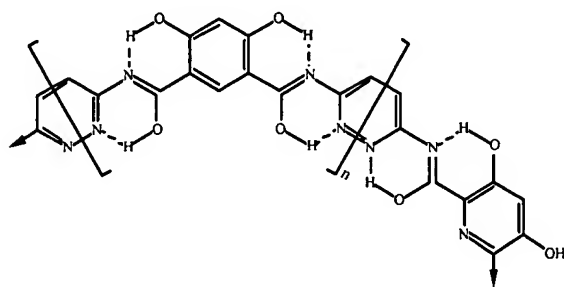
1 20. (Original) The method of claim 17, wherein the heterocyclic amine precursor comprises a  
2 functional group positioned beta to the one or more of the reactive amine groups, wherein  
3 the functional group is selected from a group consisting of an alcohol functional group, a  
4 thiol functional group and an amine functional group.

1 21. (Original) The method of claim 17, wherein the two reactive carboxylic acid groups are  
2 positioned para to each other on the aromatic structure.

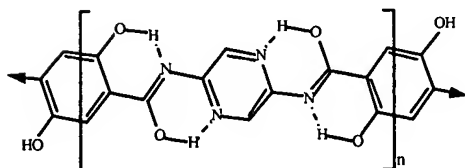
- 1 22. (Original) The method of claim 17, wherein the reactive amine groups are positioned para  
2 relative to each other on the heterocyclic structure.
- 1 23. (Original) The method of claim 17, further comprising incorporating the aromatic  
2 polyamide in a binder material.
- 1 24. (Original) The method of claim 23, wherein the binder material is selected from a group  
2 consisting of epoxy, rubber, plastic, polyurethane and silicone.
- 1 25. (Original) The method of claim 17, further comprising integrating the aromatic  
2 polyamide into a fabric material.
- 1 26. (Withdrawn) A method of making an aromatic polyamide comprising:  
2 a) combining a first precursor with a second precursor to form the aromatic  
3 polyamide, wherein the first precursor comprises two reactive carboxylic acid  
4 groups bonded to an aromatic structure and the second precursor comprises two  
5 reactive amine groups bonded to a heterocyclic structure; and  
6 b) isolating the aromatic polyamide.
- 1 27. (Withdrawn) The method of claim 26, further comprising combining a third precursor  
2 with the first precursor and the second precursor, wherein the third precursor comprises  
3 two reactive carboxylic acid groups bonded to an aromatic structure that is different from  
4 the aromatic structure of first precursor.
- 1 28. (Withdrawn) The method of claim 26, further comprising combining a third precursor  
2 with the first precursor and the second precursor, wherein the third precursor comprises  
3 two reactive amine groups bonded to a heterocyclic structure that is different from the  
4 heterocyclic structure of the second precursor.
- 1 29. (Withdrawn) The method of claim 26, wherein the heterocyclic structure of the second  
2 precursor comprises a nitrogen atom positioned beta to at least one of the reactive amine  
3 groups.

- 4 30. (Withdrawn) The method of claim 29, wherein the heterocyclic structure of the second  
5 precursor comprises an alcohol functional group.
- 1 31. (Withdrawn) The method of claim 30, wherein the alcohol functional group is positioned  
2 beta to at least one of the reactive amine groups.
- 1 32. (Withdrawn) The method of claim 26, wherein the aromatic structure comprises an  
2 alcohol functional group.
- 1 33. (Withdrawn) The method of claim 32, wherein the alcohol functional group is positioned  
2 beta to at least one of the reactive carboxylic acid groups.
- 1 34. (New) A composite material comprising a polymer with an amide back-bone structure  
2 represented by the formula  $[-(\text{OH})\text{Ar}(\text{OH})-\text{C}(\text{OH})=\text{N}-\text{Ht}-\text{N}=\text{C}(\text{OH})-]_n$ , wherein Ar are  
3 aromatic moieties and Ht are heterocycles comprising hetero-atoms with the hetero-atoms  
4 of the heterocycles being positioned beta relative to nitrogen atoms forming amide  
5 linkages forming the amide back-bone structure.
- 1 35. (New) The composite material of claim 1, wherein the amide back-bone is substantially  
2 represented by at least one of the structures A-C:

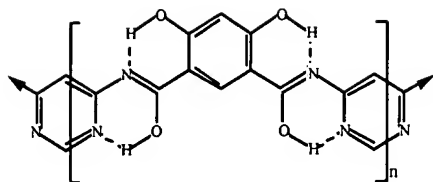
A)



B)



C)



- 1     36.     (New) The composite material of claim 34, wherein the hetero-atoms are nitrogen.
- 1     37.     (New) The composite material of claim 34, wherein the heterocyclic structures comprise  
2     an alcohol functional group that is positioned beta to at least a portion of the amide  
3     linkages.
- 1     38.     (New) The composite material of claim 34, wherein the aromatic structures comprise one  
2     or more function groups positioned beta relative to at least a portion of the amide  
3     linkages, the one or more functional group being selected from a group consisting of an  
4     alcohol functional group, a thiol functional group and an amine functional group.
- 1     39.     (New) The composite material of claim 34, wherein aromatic structures include bicyclic  
2     sub-structures.
- 1     40.     (New) The composite material of claim 34, further comprising a binder material.
- 2     41.     (New) The composite material of claim 34, wherein the binder material comprises one or  
3     more materials selected from a group consisting of epoxy, rubber, plastic, polyurethane  
4     and silicone.
- 5     42.     (New) The composite material of claim 34, wherein the amide linkages are positioned  
6     para between the aromatic structures and the heterocyclic structures.